Plant and Soil **150**: 341–344, 1993.

Contents of Volume 150 (1993)

PLANT AND SOIL

Vol. 150, No. 1 March (I) 1993

Research articles

Simulation model of soil compaction and root growth. I. Model structure 1
R. F. Grant

Simulation model of soil compaction and root growth. II. Model performance and validation 15
R. F. Grant

Uptake and distribution of cadmium in maize inbred lines 25
P. J. Florijn, M. L. van Beusichem

Effect of phosphorus fertilization on water stress in Douglas fir seedlings during soil drying 33
M. G. Dosskey, L. Boersma, R. G. Linderman

Effects of erosion on ecto- and VA-mycorrhizal inoculum potential of soil following forest fire in southwest Oregon 41
M. P. Amaranthus, J. M. Trappe

Treatment of potato tubers with a growth promoting *Pseudomonas* sp.: Plant growth responses and bacterium distribution in the rhizosphere 51
M. I. Frommel, J. Nowak, G. Lazarovits

Accumulation of cadmium and selected elements in flax seed grown on a calcareous soil 61
J. T. Moraghan

Sulphur uptake and distribution in double and single low varieties of oilseed rape (*Brassica napus* L.) 69
F. J. Zhao, E. J. Evans, P. E. Bilsborrow, J. K. Syers

Uptake and leaching of nitrogen from artificial urine applied to grassland on different dates during the growing season 77
S. P. Cuttle, P. C. Bourne

Vertical root distribution in relation to soil properties in New Jersey Pinelands forests 87
U. M. Sainju, R. E. Good

A rapid screening technique for salt tolerance in rice (*Oryza sativa* L.) 99
M. Aslam, R. H. Qureshi, N. Ahmed

Response of *Stylosanthes guianensis* to endomycorrhizal fungi inoculation as affected by lime and phosphorus applications. II. Nutrient uptake 109
M. R. Lambais, E. J. B. N. Cardoso

Effect of crop residues on root growth and phosphorus acquisition of pearl millet in an acid sandy soil in Niger 117
H. Hafner, E. George, A. Bationo, H. Marschner

Differences between maize and wheat in growth-related nutrient demand and uptake of potassium and phosphorus at suboptimal root zone temperatures 129
C. Engels

Etiology of crop growth variability in groundnut in Niger 139
P. Subrahmanyam, B. J. Ndunguru, S. B. Sharma, K. L. Sahrawat, D. C. Greenberg, H. van Riel

An analysis of the growth response of carrot seedlings to deficiency in some mineral nutrients 147
C. C. Hole, A. Scaife

PLANT AND SOIL

Vol. 150, No. 2 March (II) 1993

Research articles

Evaluation of polysulfone hollow fibres and ceramic suction samplers as devices for the in situ extraction of soil solution 157
D. L. Jones, A. C. Edwards

The course of ^{15}N-ammonium nitrate in a spring barley cropping system 167
G. J. M. Vos, B. Duquet, J. C. Vedy, J. A. Neyroud

Quantitative and qualitative seasonal changes in the microbial community from the phyllosphere of sugar beet (*Beta vulgaris*) 177
I. P. Thompson, M. J. Bailey, J. S. Fenlon, T. R. Fermor, A. K. Lilley, J. M. Lynch, P. J. McCormack, M. P. McQuilken, K. J. Purdy, P. B. Rainey, J. M. Whipps

Nitrogen uptake in barley after spring incorporation of ^{15}N-labelled Italian ryegrass into sandy soils 193
I. K. Thomsen

Response of tomato cultivars to salinity 203
F. Perez Alfocea, M. T. Estañ, M. Caro, M. C. Bolarín

Crop residue application increases nitrogen fixation and dry matter production in groundnut (*Arachis hypogaea* L.) grown on an acid sandy soil in Niger, West Africa 213
F.-P. Rebafka, B. J. Ndunguru, H. Marschner

Xylem-solute technique to measure N_2 fixation by *Phaseolus vulgaris* L.: Calibration and sources of error 223
A. P. Hansen, B. Rerkasem, S. Lordkaew, P. Martin

Decay rate and substrate quality of fine roots and foliage of two tropical tree species in the Luquillo Experimental Forest, Puerto Rico 233
J. Bloomfield, K. A. Vogt, D. J. Vogt

Further evidence that zinc is required throughout the root zone for optimal plant growth and development 247
R. O. Nable, M. J. Webb

Ethylene and carbon dioxide concentrations of soils as influenced by rhizosphere of crops under field and pot conditions 255
T. Otani, N. Ae

Seasonal uptake of ^{15}N-nitrate and distribution of absorbed nitrogen in peach trees 263
N. Muñoz, J. Guerri, F. Legaz, E. Primo-Millo

Soil aluminium effects on uptake, influx, and transport of nutrients in sorghum genotypes 271
V. C. Baligar, R. E. Schaffert, H. L. Dos Santos, G. V. E. Pitta, A. F. de C. Bahia Filho

Direct assessment of mineral phosphorus availability to tropical crops using ^{32}P labelled compounds 279
R. D. Armstrong, K. R. Helyar, R. Prangnell

Boron deficiency in soybean [*Glycine max* (L.) Merr.] peanut (*Arachis hypogaea* L.) and black gram [*Vigna mungo* (L.) Hepper]: Symptoms in seeds and differences among soybean cultivars in susceptibility to boron deficiency 289
B. Rerkasem, R. W. Bell, S. Lodkaew, J. F. Loneragan

Effects of *Frankia* on field performance of *Alnus* clones and seedlings 295
O. Q. Hendrickson, D. Burgess, P. Perinet, F. Tremblay, L. Chatatpaul

Short communications

Effects of drought on the yellowing status and the dynamics of mineral elements in the xylem sap of declining spruce (*Picea abies* L.) 303
E. Dambrine, N. Carisey, B. Pollier, A. Granier

Response of soybean genotypes to boron, zinc and manganese deficiency in tissue culture 307
M. J. Graham, D. L. Heavner, C. D. Nickell, J. M. Widholm

Errata

K.H. Diekmann, S.K. De Datta and J.C.G. Ottow, Nitrogen uptake and recovery from urea and green manure in lowland rice measured by ^{15}N and non-isotope technique, *Plant and Soil* 148 (1993): 91–99. 311

U. Falkengren-Grerup and G. Tyler, Soil chemical properties excluding field-layer species from beech forest mor, *Plant and Soil* 148 (1993): 185–191. 323

P. Zaccheo, L. Crippa and P. L. Genevini, Nitrogen transformation in soil treated with ^{15}N labelled dried or composted ryegrass, *Plant and Soil* 148 (1993): 193–201. 325

P. A. A. Pereira, B. D. Miranda, J. R. Attewell, K. A. Kmiecik and F. A. Bliss, Selection for increased nodule number in common bean (*Phaseolus* vulgaris L.), *Plant and Soil* 148 (1993): 203–209. 327

G. S. Bañuelos, G. E. Cardon, C. J. Phene, L. Wu, S. Akhohoue and S. Zambrzuski, Soil boron and selenium removal by three plant species, *Plant and Soil* 148 (1993): 253–263. **329**

K. A. Hughes and P. W. Gandar, Length densities, occupancies and weights of apple root systems, *Plant and Soil* 148 (1993): 211–221 **331**

Announcement **332**

Acknowledgement to referees in 1992 **333**

Instructions to authors (1993) **337**

Contents to Volume 150 **341**

Author index **345**